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THE DISTRIBUTION AND RELATIONSHIPS OF *AMMO-
DRAMUS MARITIMUS* AND ITS ALLIES.

BY FRANK M. CHAPMAN.

Plate I.

A FIELD experience with four of our five recognized Seaside Sparrows has been the means of calling my attention to certain apparent anomalies in their distribution and relationships which in the following pages I have attempted to make clear.

The material at my command while not wholly satisfactory, is nevertheless, I trust, sufficient to warrant a provisional explanation of the facts it presents. It numbers some 160 specimens, including series loaned me by Mr. Robert Ridgway from the collections under his charge, by Mr. William Brewster and Dr. A. K. Fisher, and also the examples in the American Museum of Natural History. The specimens loaned me by the gentlemen named constitute so important a part of the material studied that I feel under more than usual obligation to them.

From Mr. Ridgway I have received a series of May birds collected by Mr. E. A. McIlhenny on the coast of Louisiana, and of breeding birds collected by Lieut. Wirt Robinson near St. Augustine, Florida; Mr. Brewster sends specimens from the west coast of Florida, breeding birds collected by himself at St. Mary's, Georgia, and a most puzzling series from the vicinity of Charles-

ton, South Carolina, while Dr. Fisher forwards breeding birds and young in first plumage from Grand Isle, Louisiana.

The questions involved in a study of these birds may be best presented by a brief consideration of our recorded knowledge of the distribution and relationships of the five described forms, namely: *Ammodramus maritimus*, *A. m. peninsulae*, *A. m. sennetti*, *A. m. macgillivraii*, and *A. nigrescens*. Of these five forms, which are here given under their current names, the status of *A. nigrescens* and *A. m. sennetti* is apparently clear and these two birds may be considered before taking up the perplexing questions presented by the remaining three forms.

Ammodramus nigrescens (Ridgw.).

Ammodramus maritimus var. *nigrescens* RIDGW. Bull. Essex Inst. V, 1873, 198; B. B. & R. N. A. Birds, III, 1875, App. 513 (descr. only) *ibid.* I, pl. facing p. 560.

Ammodramus melanoleucus MAYNARD, Am. Sportsman, V, 1875, 248; Birds of E. N. A. 1881, 119, pl. V (descr., habits, dist.)

Ammodramus nigrescens RIDGW. Proc. U. S. Nat. Mus. III, 1880, 178; CHAPMAN, Auk, XV, 1898, 270 (habits).

This strongly marked species was discovered by Mr. C. J. Maynard at Salt Lake, near Titusville, Florida, in March, 1892. Only a single specimen was secured at this locality, but he afterwards found it to be "quite common" on the marshes bordering the east shore of the Indian River, opposite Titusville, as recorded in the 'American Sportsman' and 'Birds of Eastern North America.' The information contained in these publications constituted all our published knowledge of the life history and distribution of this species until the appearance of my note on its abundance in the marshes about the mouth of Dummitt's Creek (Auk, l. c.), but Mr. Maynard has furnished me with the following valuable data in regard to its distribution, which, with his kind permission, I print in full: "The Black and White Shore Finch, of which I have, so far as I know, taken all of the specimens in collections, excepting two, that were shot by a friend who was with me in Florida, but who took the two in question after I left, occurs rarely about Salt Lake, Upper St. Johns, Florida, commonly on the northern end of Merritt's Island, on the marshy

islands of Banana River, on the marshes north of this lagoon, west to the Indian River, north along this body of water to the Haulover Canal. It never occurs out of the marsh grass or low water bush. Thus the bird is confined to a belt of country not over a quarter of a mile wide and about ten miles long, if followed through its extent."

When one considers the abundance of this Sparrow and that the region it inhabits is in no sense insolated, but that both to the north and south of the area outlined above there are marshes apparently similar to those it occupies, its restriction to a habitat only a few square miles in extent makes its distribution unique among American birds. In color it is the most strongly characterized form of the group, the black which prevails on the upper parts and so heavily streaks almost the entire under parts, not being equalled in intensity or extent in any of its congeners. Seventeen specimens taken in March, 1898, at the mouth of Dummitt's Creek, are in comparatively unworn plumage and present little variation in color. Their average measurements are: wing, 2.50; tail, 2.04; bill from nostril, .43 inches.

The nearest point at which another representative of this group has been secured is Matanzas Inlet, Florida.

Ammodramus sennetti (Allen).

Ammodramus maritimus sennetti ALLEN, Auk, V, 1888, 286 (orig. descr.); CHAPMAN, Bull. Am. Mus. Nat. Hist. III, 1891, 323 (habits); RHOADS, Proc. Acad. Nat. Sci. Phila. 1892, 109.

As the second most distinct form in the group and the only one, except *A. nigrescens*, which apparently does not intergrade with its allies, we may next treat of the Seaside Finch resident at Corpus Christi, Texas.

In April, 1891, I found the bird abundant and breeding in the marshes of Nueces Bay. A series of thirteen specimens shows that it more nearly resembles true *maritimus* than it does any other member of the group. It is, however, quite distinct from that form, being distinguished chiefly by its greener color and the black centers to the feathers of the upper parts. To the form geographically nearest to it, the dark Seaside Sparrow

breeding on the coast of Louisiana, the Corpus Christi bird is less closely related than to any other form of the group, except *A. nigrescens*. There is no evidence whatever of its intergradation with any of its congeners and consequently no reason for denying it specific rank.

***Ammodramus maritimus* et subsp.**

Having disposed of the two forms whose status is clearest we may now approach those whose relationships and distribution present certain apparent anomalies. Before discussing the questions involved in a study of these birds it will be well to first give briefly our recorded information concerning their distribution and the accepted views in regard to their relationships.

***Ammodramus maritimus* (Wils.).**

In the second edition of the A. O. U. 'Check-List' the range of this species is given as "Salt marshes of the Atlantic Coast, from Connecticut southward to Georgia. Accidental in Massachusetts." Recent records show the bird to be a regular summer resident in Rhode Island and as far east as Westport, Mass., just beyond the Rhode Island State line.¹ The locality "Georgia," given in the 'Check-List,' is evidently based on Mr. William Brewster's identification of the series of twelve *breeding* birds taken by himself, in some instances with nests and eggs, at St. Mary's, Georgia.²

In the second edition of his 'Manual,' Appendix, page 602, Mr. Ridgway gives the range of *maritimus* as "Massachusetts to northern Florida," the latter locality being doubtless based on Lieut. Robinson's breeding birds from St. Augustine and Matanzas Inlet, which I have previously mentioned as included in the series loaned me by Mr. Ridgway.

¹ See Howe, Auk XIV, 1897, 219; Sturtevant, *ibid.* 322; Farley, *ibid.* 322.

² Auk, XII, 1890, 212.

***Ammodramus maritimus peninsulæ* Allen.**

This race was described by Dr. J. A. Allen from specimens collected by W. E. D. Scott at Tarpon Springs, on the west coast of Florida, in February, 1888.¹ With the Florida birds Dr. Allen identified a series of ten adult and six immature birds collected by Dr. A. K. Fisher at Grand Isle, Louisiana, in June, 1886. Shortly afterward Dr. Allen recorded a specimen of *peninsulæ*, in the collection of G. S. Miller, Jr., which had been collected on Sapelo Island, off the coast of Georgia, Dec. 14, 1887.² Mr. Brewster also referred to *peninsulæ* two specimens taken on this same island in December, 1887, and Dr. Allen identified with the same form a specimen from near Charleston, S. C.³

Mr. W. E. D. Scott records *peninsulæ* as a very common winter resident near Tarpon Springs,⁴ the type locality, where, however, it does not breed. In fact the breeding grounds of this Sparrow on the Gulf coast appear to be as yet unknown. Mr. C. J. Maynard⁵ states that he found Seaside Sparrows, doubtless this form, about to breed at Cedar Keys, Florida, in February. The date is surprisingly early but it is quite probable that *peninsulæ* may breed in the marshes at Cedar Keys.

***Ammodramus maritimus macgillivraii* Ridgw. (not of Audubon).**

March 25, 1891, I collected at Corpus Christi, Texas, two specimens of a dark Seaside Sparrow which were provisionally referred to *peninsulæ*, with the statement that they were darker than that form and had gray instead of olivaceous edgings to the feathers.⁶ They were evidently winter visitants and their breeding ground remained unknown until Mr. E. A. McIlhenny collected a large series of breeding birds on and near Avery's Island,

¹ Auk, V, 1888, 284.² *Ibid.*, V, 1888, 426.³ *Ibid.*, VII, 1890, 212.⁴ Auk, VI, 1889, 322.⁵ Birds E. N. A., 121.⁶ Bull. Am. Mus. Nat. Hist., III, 1891, 324.

Louisiana. Then it appeared that the birds collected by Dr. Fisher at Grand Isle were also referable to this form. These birds, with the Corpus Christi specimens just mentioned, were considered by Mr. Ridgway¹ to represent *Fringilla macgillivraii* described by Audubon² from Charleston, South Carolina, and said later by the same writer to also occur on the coast of Louisiana and Texas.³ This name had previously been synonymized with that of *Ammodramus maritimus* under the belief that it was based on a specimen of that bird in first plumage.

The following year Dr. Walter Faxon called attention to the fact⁴ that Audubon's description of *macgillivraii* having been based on specimens from Charleston, South Carolina, a locality in which *peninsule* was known to occur, the name *macgillivraii* was obviously applicable to the bird known as *peninsule* and not to the quite different bird of Louisiana.

In attempting now to explain the peculiar conditions which this brief summary of current views has set forth, one is at once confronted with the difficulty which has beset all students of these birds, that is, the unusually worn plumage of breeding birds. So greatly does this abrasion affect a bird's appearance that almost the entire range of color variation between *maritimus* and the Louisiana bird, respectively the lightest and darkest members of this restricted group, is shown in Dr. Fisher's series of breeding birds from Grand Isle. Specimens in worn plumage, therefore, must be examined with great care and identified only after the closest comparison. Hence in order to clearly grasp the characters separating these three forms it will be necessary to use non-breeding examples. Thus I have selected a series of fall and early spring⁵ birds from Long Island, N. Y., Tarpon

¹ Manual N. A. Birds, 2nd Ed., 1896, App. 602.

² Orn. Biog. II, 1834, 285.

³ *Ibid.*, IV, 1838, 394.

⁴ Auk, XIV, 1897, 321.

⁵ It is remarkable, in view of the rapid and extreme abrasion of the plumage of breeding birds, how little the plumage shows the effects of wear and tear during the winter. There is practically no difference between the plumage of September specimens and those taken early in the following spring.

Springs, Florida,—the type locality of *peninsulae*,—and Texas. From the last named State I have only three specimens representing the dark, west Gulf coast form, but the characters they present are shown, by comparison with Mr. McIlhenny's series of breeding birds from and near Avery's Island, La., to be typical. From a careful study of this material it appears that in fresh and unworn plumage the three forms are to be distinguished from one another chiefly by the characters set forth in the appended tabular synopsis. Here it may be briefly said that *maritimus* is greenish olive margined with bluish gray above, with the breast and flanks streaked with bluish gray and margined with buff. In *peninsulae* the upper parts are dull black margined with greenish olive, the breast and flanks being streaked with dusky black margined with buff or bluish gray, while the dark west Gulf coast form has the upper parts deep black bordered by mummy brown and margined with bluish gray, the breast and flanks being distinctly streaked with black and heavily margined with pale ochraceous.

Bearing these differences in mind we may approach the puzzling series of non-breeding birds from South Carolina and Georgia. It contains thirty-one adults and two immature (first plumage) specimens. Fifteen of the adults are perfectly typical, in color, of Long Island *maritimus*. Only one has the wing under 2.40 in., their average measurements being: wing, 2.46; tail, 2.18; bill from nostril, .45 in. They thus closely approach Long Island birds in size (see table of measurements beyond), evidence that they were winter residents from the north.

Of the remaining sixteen adults ten are intermediate between *maritimus* and *peninsulae*, most of them approaching the latter much more closely than the former. Their average measurements are: wing, 2.40; tail, 2.15; bill from nostril, .45. Nine of these birds are in Mr. Brewster's collection, seven of them being labeled by him "*peninsulae*."

I believe these birds to be resident, racial representatives of *maritimus*, marking a stage in the geographical variation in this species, which, on the west coast of Florida, appears as *peninsulae*. A specimen, evidently breeding, collected by Dr. Coues at Fort Macon, N. C., April 15, 1869 (U. S. N. M. No. 55523) is appre-

ciably darker than comparable Long Island birds and apparently indicates an approach to the *peninsulæ* type, as it is represented on the Atlantic coast by birds similar to the ten specimens first mentioned. To this intermediate, South Atlantic form of *maritimus* I refer with some confidence Brewster's breeding birds from St. Mary's, Georgia, and Robinson's breeding birds from the vicinity of St. Augustine and Matanzas Inlet, Florida. These birds, I am aware, have been referred to true *maritimus* and their plumage is in such worn condition that it is true they closely resemble, at first sight, Long Island specimens of that species. Carefully compared, however, with equally worn Long Island birds, they are grayer and more streaked below, while the lateral stripes of the crown, areas which seem least to show abrasion, are darker than in *maritimus*, being raw-umber as in *peninsulæ*, agreeing in fact, considering their abrasion, very closely in the color of this region with the ten specimens which I have spoken of as intermediate between *maritimus* and *peninsulæ*.

Accepting this identification, what shall we call this dark representative of *Anmodramus maritimus* which apparently is a permanent resident on the Atlantic coast from at least St. Augustine to Charleston? Individually they have for the most part been identified as *peninsulæ*, and while they have longer bills and are less green above and less heavily streaked below than true *peninsulæ*, they are so much nearer to this form than to *maritimus*, that I should prefer to refer them to the former rather than to the latter, or rather than to accept the alternative of giving them a name of their own.

This leaves us with six specimens of the South Carolina and Georgia series which can be referred to neither *maritimus* nor *peninsulæ*. Three of these birds are in the collection of the United States National Museum (Nos. 159387, ♀, Oct. 24, 1893; No. 159388, ♀, Oct. 27, 1893; No. 159657, ♀, Oct. 23, 1895, all taken at Mount Pleasant, So. Car.), and three are in Mr. Brewster's collection (No. 19047, ♀, Dec. 3, 1887, Sapelo Is., Ga.; No. 45753, ♂, Nov. 27, 1894 and No. 47656, ♀, April 17, 1897, Mount Pleasant, So. Car.). In the coloration of the upper parts they resemble the dark, west Gulf coast bird, but the black of the feathers of the upper parts is margined with olive

instead of mummy brown, the nape is more olive, and, with the exception of No. 159388, the breast and flanks are much less strongly streaked and less heavily washed with buffy ochraceous, the coloration of these parts agreeing with that of *peninsulae*.

Apparently these two forms of Seaside Sparrow, represented by my series of ten and six birds respectively, are found breeding in the same area, a fact which is evidently proven by two birds in first or nestling plumage. One of these (U. S. Nat. Mus. No. 159389, ♂) was taken by Mr. A. T. Wayne at Mount Pleasant, So. Car., Aug. 10, 1893, and is obviously the offspring of a very dark Seaside Sparrow, being much blacker than any of a dozen New York examples in similar plumage, and in fact agreeing very well with six young birds collected by Dr. A. K. Fisher on Grand Isle, La., June 6-9, 1896. This is evidently the progeny of the dark bird just described.

The other young bird (No. 12437, Coll. Wm. Brewster) was collected by Mr. Walter Hoxie, near Frogmore, So. Car., Aug. 10, 1886. It is much lighter than the Mount Pleasant specimen, with which it agrees in age, and approaches young *maritimus* from New York, differing from it to just about the same extent and in much the same manner as do the *peninsulae-maritimus* adults of this region from adult true *maritimus*. This bird is apparently the offspring of *peninsulae-maritimus* parents. Hence the breeding of these birds and of the dark type in the same region is shown both by the presence of adults and their respective offspring. What their interrelationships may be, and whether they occupy different breeding areas, are questions which can be settled only by observation in the field. Specimens before me apparently show their intergradation but my material does not admit of satisfactory conclusions.

However, admitting that we have two forms, we are now confronted by the question of nomenclature. What names shall we apply to them? The *peninsulae-maritimus* specimens, as I have previously said, should, in my opinion, be identified with *peninsulae* rather than with *maritimus*, but what shall we call the black and gray birds? Unquestionably, it seems to me, they represent *macgillivraii* of Audubon, and while he also placed the Louisiana and Texas birds under this name, there can be no doubt that, as

Dr. Faxon had shown, he figured and described specimens collected near Charleston by Dr. Bachman. In support of this statement see Volume II, page 285 of the Ornithological Biography, on which Audubon states that Bachman presented him with a dozen specimens of this Sparrow collected near Charleston, where J. W. Audubon made the drawing which was afterward published in the fourth volume of the 'Birds of America.' No mention is made in Volume II of Texas and Louisiana, where the bird was evidently not discovered until several years later, being first recorded from these States in Volume IV, page 394, of the 'Ornithological Biography,' published in 1838, or four years after the description of '*Fringilla macgillivrayi*' from Charleston.

The specimen upon which this description was probably based is now in the U. S. Nat. Mus. (No. 2894) but is without date or locality. It is a young bird in first plumage, of the same age as the specimen taken at Mt. Pleasant, S. C., Aug. 10, 1893, from which it differs no more than do immature specimens of *maritimus* from one another.

If this view of the case be accepted it will permit us to give the Louisiana bird a name of its own, a course which the specimens involved seem to warrant. And I therefore propose to name it in honor of Dr. A. K. Fisher who, after Audubon, was the first ornithologist to secure specimens of the Louisiana bird. Hence we have

***Ammodramus maritimus fisheri*, subsp. nov.**

Ammodramus macgillivrayi AUD. (in part) Orn. Biog. IV, 1838, 394.

Ammodramus maritimus macgillivrayi RIDGW. Manual N. A. Birds, 2d Ed., 1896, App. 602.

Ammodramus maritimus peninsulæ ALLEN (in part), Auk, V, 1888, 284.

Ammodramus maritimus peninsulæ? CHAPM. Bull. Am. Mus. Nat. Hist., III, 1891, 324.

Char. Subsp.—Upper parts deep black, in fresh plumage the feathers bordered by mummy brown and margined with bluish gray, the breast and flanks streaked with black and more or less heavily washed by pale ochraceous.

Type, No. 163,722, U. S. Nat. Mus. Collected by A. K. Fisher, M. D. Collector's number No. 2622, ♀ ad., egg in oviduct, Grand Isle, Louisiana, June 9, 1886.

Range.—Coast of Gulf States, breeding from Grand Isle, La., westward, probably to northeastern Texas, southward in winter to Corpus Christi, Texas, and Tarpon Springs, Florida.¹

In the appended table a comparison of the diagnostic characters of all the forms of the restricted *maritimus* group in fresh plumage is given. As before remarked, abrasion so alters a breeding bird's appearance that in some cases badly worn specimens are practically unidentifiable. Of the 17 breeding birds collected by Dr. Fisher on Grand Isle and by Mr. McIlhenny on and near Avery's Island, all but four are more or less suffused with pale ochraceous on the breast and flanks, the most diagnostic character presented by *fisheri*, and about half the series are still more or less distinctly streaked with black below. It is in unworn plumage, however, that the differential characters of these birds are most evident, and it is on specimens in this condition that the appended table comparing the four forms of the restricted *maritimus* group is based.

TABLE OF DIAGNOSTIC CHARACTERS OF SEASIDE SPARROWS OF THE
Ammodramus maritimus GROUP.

Crown.

Maritimus.—Sides olive with occasionally black shaft-streaks, median line well defined, bluish gray.

Peninsulæ.—Sides dull black, margined with raw umber, median line ill defined, bluish gray.

Macgillivrayi.—Sides deep black, margined with mummy brown, median line ill defined, bluish gray.

Fisheri.—Sides deep black, margined with mummy brown, median line ill defined, bluish gray.²

Nape.

Maritimus.—Pale greenish olive.

Peninsulæ.—Greenish olive.

Macgillivrayi.—Tawny olive.

Fisheri.—Mummy brown.

¹No. 43472, ♀, Tarpon Springs, Nov. 2, 1891. Coll. Wm. Brewster, is clearly referable to *fisheri*.

²Ridgway's 'Nomenclature of Colors' is used throughout this paper.

Back.

Maritimus.—Olive, margined by bluish gray.

Peninsulæ.—Dull black, margined by greenish olive.

Macgillivraii.—Deep black, bordered by greenish olive and margined with bluish gray.

Fisherii.—Deep black, bordered by mummy brown and margined by bluish gray.

Breast.

Maritimus.—Streaked with bluish gray, margined with buff.

Peninsulæ.—Streaked with dusky, margined with buff or bluish gray.¹

Macgillivraii.—Streaked with dusky, margined with buff.

Fisherii.—Streaked with black, widely margined with pale ochraceous.

Flanks.

Maritimus.—Obscurely streaked with bluish gray and faintly washed with buff.

Peninsulæ.—Streaked with dusky, margined with grayish or olive buff.

Macgillivraii.—Streaked with dusky, margined with buff.

Fisherii.—Streaked with black, widely margined with pale ochraceous.

Average measurements.

	Wing.	Tail.	Bill from nostril.
<i>Maritimus</i>	2.52	2.25	46.5 in.
<i>Peninsulæ</i>	2.32	2.09	42 "
<i>Macgillivraii</i>	2.36	2.18	46 "
<i>Fisherii</i>	2.29	2.12	45.8 "

A CHAPTER IN THE LIFE OF THE CANADA JAY.

BY OSCAR BIRD WARREN.

ON THE 22d of February of this year (1898), while returning from a walk to a lumber camp near Mahoning, Mich., I discovered a pair of Canada Jays (*Perisoreus canadensis*) building a nest.

¹ Eight of sixteen specimens have the breast more or less washed with buff.